Amendment to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer-implemented method for ~~optimizing leaf comparisons from a tree search of~~ performing read/write access of data stored in a leaf of a tree structure within an external memory of an embedded processing system, the method comprising:

providing a control structure for ~~leaf data comparisons~~ the leaf of the tree structure, the control structure including a control vector and a match key, the control vector indicating a type of comparison test to be performed on the match key; ~~and~~

storing the control structure including the control vector and the match key within a the leaf of the tree structure;

processing an input key pattern to locate the leaf of the tree structure by performing the type of comparison test indicated by the stored control vector between the input key pattern and the match key; and

accessing the data stored in the leaf of the tree structure to perform a read or write responsive to the input key pattern matching the input key pattern in accordance with the performed comparison test.

2. (Previously Presented) The method of claim 1, wherein the control vector further comprises a control setting that indicates a type of comparison test to be performed on a pre-determined portion of the match key.

3. (Previously Presented) The method of claim 2, wherein the control setting further

comprises a two-bit value that indicates a type of comparison test to be performed on a byte of the match key.

4. (Currently Amended) The method of claim 2, wherein providing a control structure ~~further comprising~~ comprises providing the control structure in a fixed size block of memory.

5. (Currently Amended) The method of claim 4, further comprising ~~allowing storage of~~ storing additional data in the fixed size block of memory following the control structure.

6. (Previously Presented) The method of claim 2, wherein the control vector further comprises a control setting to indicate a masked compare test is to be performed, a masked compare test being a don't care comparison test.

7. (Original) The method of claim 6, wherein the match key further comprises a mask pattern and key value for the masked compare test.

8. (Previously Presented) The method of claim 2, wherein the control vector further comprises a control setting to indicate a range compare test is to be performed, a range compare test being a comparison test that matches a value to a pre-determined range of values.

9. (Previously Presented) The method of claim 8, wherein the match key further comprises maximum and minimum values of the pre-determined range of values for the range compare test.

10. (Currently Amended) A system comprising:

an external memory storing data in a leaf of a tree structure within the external memory, the leaf containing a match key and a control vector, the control vector indicating a type of comparison test to be performed on the match key for accessing the data stored in the leaf;

an embedded processing system coupled to the external memory, the embedded processing system including a tree search engine to process an input key pattern to locate the leaf within the tree structure of the external memory by performing the type of comparison test indicated by the stored control vector between the input key pattern and the match key; and

the tree search engine accessing the data stored in the leaf of the tree structure for performing a read or write responsive to the input key pattern matching the input key pattern in accordance with the performed comparison test.

~~An embedded processing system for optimizing leaf comparisons from a tree search, the embedded processing system comprising:~~

~~an embedded processor, the embedded processor including a tree search engine; and~~

~~external memory coupled to the embedded processor, wherein the tree search engine performs comparisons on leaf data in a tree structure within the external memory according to a control structure, the control structure comprising a control vector and match key and being stored within a leaf of the tree structure, wherein the control vector indicates a type of comparison test to be performed on the match key.~~

11. (Currently Amended) The ~~embedded processing~~ system of claim 10, wherein the control vector further comprises a control setting that indicates a type of comparison test to be performed on a pre-determined portion of the match key.

12. (Currently Amended) The ~~embedded processing~~ system of claim 11, wherein the control

setting further comprises a two-bit value that indicates a type of comparison test to be performed on a byte of the match key.

13. (Currently Amended) The ~~embedded processing~~ system of claim 10, wherein the external memory comprises fixed sized blocks for storing the control structure.

14. (Currently Amended) The ~~embedded processing~~ system of claim 13, wherein the external memory further stores additional data in the fixed size block of memory following the control structure.

15. (Currently Amended) The ~~embedded processing~~ system of claim 11, wherein the control vector further comprises a control setting to indicate a masked compare test is to be performed, a masked compare test being a don't care comparison test.

16. (Currently Amended) The ~~embedded processing~~ system of claim 15, wherein the match key further comprises a mask pattern and key value for the masked compare test.

17. (Currently Amended) The ~~embedded processing~~ system of claim 11, wherein the control vector further comprises a control setting to indicate a range compare test is to be performed, a range compare test being a comparison test that matches a value to a pre-determined range of values.

18. (Currently Amended) The ~~embedded processing~~ system of claim 17, wherein the match key further comprises maximum and minimum values of the pre-determined range of values for the

range compare test.

19-25. (Cancelled)

26. (Currently Amended) A computer readable medium containing program instructions tangibly stored thereon for ~~optimizing leaf comparisons from a tree search of~~ performing read/write access of data stored in a leaf of a tree structure within an external memory of an embedded processing system, the program instructions comprising instructions to:

provide a control structure for ~~leaf data comparisons~~ the leaf of the tree structure, the control structure including ~~as~~ a control vector and a match key, the control vector indicating a type of comparison test to be performed on the match key; ~~and~~

store the control structure including the control vector and the match key within a the leaf of the tree structure;

process an input key pattern to locate the leaf of the tree structure by performing the type of comparison test indicated by the stored control vector between the input key pattern and the match key; and

access the data stored in the leaf of the tree structure to perform a read or write responsive to the input key pattern matching the input key pattern in accordance with the performed comparison test.

27-28. (Cancelled)

29. (New) The computer readable medium of claim 26, wherein the control vector further comprises a control setting that indicates a type of comparison test to be performed on a

pre-determined portion of the match key.

30. (New) The computer readable medium of claim 29, wherein the control setting further comprises a two-bit value that indicates a type of comparison test to be performed on a byte of the match key.

31. (New) The computer readable medium of claim 29, wherein the instructions to provide a control structure comprise instructions to provide the control structure in a fixed size block of memory.

32. (New) The computer readable medium of claim 31, further comprising instructions to store additional data in the fixed size block of memory following the control structure.

33. (New) The computer readable medium of claim 29, wherein the control vector further comprises a control setting to indicate a masked compare test is to be performed, a masked compare test being a don't care comparison test.

34. (New) The computer readable medium of claim 33, wherein the match key further comprises a mask pattern and key value for the masked compare test.

35. (New) The computer readable medium of claim 29, wherein the control vector further comprises a control setting to indicate a range compare test is to be performed, a range compare test being a comparison test that matches a value to a pre-determined range of values.